METRIC

A-A-20126E
February 26, 2004
SUPERSEDING
A-A-20126D
September 30, 1998

COMMERCIAL ITEM DESCRIPTION

FLOUR

The U.S. Department of Agriculture (USDA) has authorized the use of this Commercial Item Description (CID).

1. SCOPE. This CID covers flour, packed in commercially acceptable containers, suitable for use by Federal, State, local governments, and other interested parties; and as a component of operational rations.

2. PURCHASER NOTES.

2.1 Purchasers *shall specify* the following:

- Type(s) and style(s) of flour required (Sec. 3).
- When analytical requirements are different than specified (Sec. 6.1).
- When analytical requirements need to be verified (Sec. 6.2).
- Manufacturer's/distributor's certification (Sec. 9.2) or USDA certification (Sec. 9.3).

2.2 Purchasers *may specify* the following:

- Manufacturer's quality assurance (Sec. 9.1 with 9.1.1), (Sec. 9.1 with 9.1.2) or (Sec. 9.1 with 9.1.3).
- Packaging requirements other than commercial (Sec. 10).

3. CLASSIFICATION. The flour shall conform to the following list which shall be specified in the solicitation, contract, or purchase order.

Types and styles.

Type I - Bread flour (Hard wheat flour)
Type II - Bread flour (Bakers hard wheat Hearth-style) (Hearth-style bread flour may contain potassium bromate added in a quantity not exceeding 25 parts to each million parts of finished flour to achieve maximum quality acceptance Hearth-

style bread products.)
Type III - General or All Purpose flour
Type IV - Cake flour (Soft wheat flour)
Type V - Pastry flour
Type VI - Whole wheat flour
Type VII - Rye Flour
Type VIII - Oat Flour
Type IX - Other

Style A - Unbleached (Wheat flour which has not been treated with a maturing ingredient, a color modifying ingredient, or any combination of maturing and color modifying ingredients.)

Style B - Bleached (Wheat flour which has been treated with a maturing ingredient, a color modifying ingredient, or any combination of maturing and color modifying ingredients in accordance with 21 CFR § 137.105.)

4. MANUFACTURER'S/DISTRIBUTOR'S NOTES. Manufacturer's/distributor's products *shall meet* the requirements of the:

- Salient characteristics (Sec. 5).
- Analytical requirements*: as specified by the purchaser* (Sec. 6).
- Manufacturer's/distributor's product assurance (Sec. 7).
- Regulatory requirements (Sec. 8).
- Quality assurance provisions: *as specified by the purchaser* (Sec. 9).
- Packaging requirements other than commercial: *as specified by the purchaser* (Sec. 10).

5. SALIENT CHARACTERISTICS.

5.1 Raw Ingredients. The flour shall be prepared from clean, sound grains.

5.1.1 Wheat flour. The wheat shall be U.S. No. 2 grade or better. Unclassed wheat and mixed wheat are excluded. Wheat flour shall comply with the U.S. Standards of Identity in 21 CFR § 137.105 and whole wheat flour shall comply with the U.S. Standards of Identity in 21 CFR § 137.200.

5.1.1.1 Enrichment. The wheat flour, except for whole wheat flour, shall be enriched to conform to the U.S. Standards of Identity for Enriched Flour (21 CFR § 137.165).

5.1.1.2 Types of wheat flour. The six types of wheat flour shall be milled from wheat of the following classes:

Types of wheat flour	Classes of wheat

Bread flour, bread flour (Hearth-style), and whole wheat flour	Hard red spring Hard red winter Hard white wheat
General or All Purpose flour	Hard red spring Hard red winter Soft red winter Hard white wheat Soft white wheat
Cake flour and pastry flour	Soft red winter Soft white wheat

5.1.2 Rye flour. The rye shall be U.S. No. 2 grade or better.

5.1.3 Oat flour. The oat flour shall be food grade, milled from sound, cleaned oats. The oats shall be U.S. No. 2 grade or better.

5.2 Processing. The flour shall be processed in accordance with good manufacturing practices (21 CFR Part 110).

5.2.1 Wheat flour. The wheat flour shall be processed through a centrifugal impactor operated at the equipment manufacture's recommended speed and flow rate designed to insure the destruction of insect eggs and shall be bolted through a 9XX or finer sieve sifter. Impaction and bolting processes may be repeated at various points in the milling operation. One of these treatments shall occur immediately before entrance of the flour into the packing machinery.

5.2.2 Rye Flour. The rye flour shall be processed through a centrifugal impactor to destroy insect eggs as necessary, during the processing, but at least immediately prior to entering the packing machinery.

5.2.3 Oat flour. The oat flour shall be dehulled oats that have been steamed and ground to produce a stable flour in which enzyme activity is functionally negative.

5.3 Finished product. The flour shall be suitable for use in baking processes presently in common industrial use for the product(s) as specified by the type of flour and application. The rye and oat flours shall be suitable for use in combination with other food ingredients for preparation of varietal bakery products.

5.3.1 Appearance and color. The wheat flour shall have a characteristic white or cream color of either bleached or unbleached wheat flour. The rye flour shall be a moderately refined product consisting of rye endosperm and small amounts of other parts of the rye kernel and shall have a good, characteristic, very light, grayish-brown color. The oat flour shall have a characteristic beige or tan color of oats.

5.3.2 Odor and flavor. The wheat flour shall possess a natural wheat-flour flavor and odor. The rye flour shall possess a natural rye-flour flavor and odor. The oat flour shall possess a natural oat nut-like flavor and odor. The flour(s) shall be free from rancid, bitter, musty, sour, and other undesirable flavors and odors.

5.3.3 Texture. The flours shall be free flowing and free from lumps that do not fall apart with light finger pressure.

5.4 Age requirement. Unless otherwise specified in the solicitation, contract, or purchase order, the flour shall be processed and packaged not more than 60 days prior to delivery to the purchaser. Age requirements for Department of Defense (DoD) procurements shall be specified in the solicitation, contract or purchase order.

6. ANALYTICAL AND PHYSICAL REQUIREMENTS.

6.1 Analytical and physical requirements. Unless otherwise specified in the solicitation, contract, or purchase order, the flour shall conform to the following requirements listed in Table I, Table II, or Table III.

Table I. Analytical and physical requirements for wheat flour

Type	Protein level 1/ (Percent)		Ash level 1/ (Percent)	Moisture (Percent)	FN Units or GAA 2/			
	Min.	Max.	Max.	Max.	Min.	Max.	Min.	Max.
Bread flour 3/	11.3	----	0.50	14.0	225	300	300	600
Bread flour (Hearth-style)	13.3	----	0.56	14.0	200	300	350	600
General or All Purpose flour 4/	9.0	----	0.50	15.0	225	300	300	600
Cake flour 5/	-----	9.3	0.42	13.5	350	----	-----	----
Pastry flour	-----	10.5	0.48	14.0	350	----	-----	----
Whole wheat flour	12.0	----	1.90	15.0	250	----	-----	----

1/ Requirements are based on maximum percent moisture for each type and are calculated on a moisture free basis as not more than the sum of 1/20 of the percent protein (moisture free) plus 0.35.

2/ Falling Number (FN) applies to all flours containing diastatic barley malt. Grain Amylase Analyzer (GAA) applies to flours containing fungal alpha-amylase. (1 to 2.5 g fungal alpha-amylase/45.36 kg [100 lb.] enriched flour.)

3/ Bread flour shall produce bread with a specific volume of not less than 4.8 when tested for

specific volume by the rapeseed method.

4/ General or All Purpose flour shall produce a cake with a specific volume of not less than 2.2 without gas pockets when tested for specific volume.

5/ pH level shall be not less than 4.3 nor more than 4.7.

Table II. Analytical and particle size requirements for rye flour

Ash level 6/ (Percent)	Moisture (Percent)	Maximum amount permitted on U.S. Standard woven-wire cloth sieve (Percent)	
Maximum	Maximum	No. 50	No. 100
1.5	13.5	1.0	20.0

6/ Requirements are based on 13.5 percent moisture.

Table III. Analytical requirements for oat flour 7/

U.S Protein level (Percent)	Fat (Percent)	Ash (Percent)	Moisture (Percent)	Maximum amount permitted on Standard woven-wire cloth sieve (Percent)	
Minimum	Maximum	Maximum	Maximum	No. 35	No. 100
13.5	8.0	2.2	10.0	2.0	75.0

7/ Requirements are based on 10.0 percent moisture.

6.2 Product verification: When USDA verification of analytical requirements is specified in the solicitation, contract, or purchase order, the following procedures will be followed.

6.2.1 Sampling procedures. USDA inspection service will select the number of product containers based on USDA inspection service sampling procedures and plans.

6.2.1.1 Preparation of sample. Analytical testing shall be performed on a composite sample. The composite sample shall be 113.40 grams (4 ounces) and prepared from subsamples drawn from randomly selected containers. The number of subsamples used to create the composite shall be based on USDA procedures.

6.3 Analytical testing. Analysis shall be made in accordance with the following methods described in the Approved Methods of the American Association of Cereal Chemists (AACC) and the Official Methods of Analysis of the AOAC International.

Test	**Method**
Protein	46-30 **8/**
Ash	08-01
Moisture	44-15A or 925.09 (AOAC)
FN units	56-81B
PH	02-52
Specific volume	**9/**
Fungal alpha amylase	22-12
Fat	30-10

8/ Use percent crude protein = % nitrogen x 5.70.
9/ See section 6.6.2, Rapeseed displacement method.

6.4 Test results. The test results for protein level, moisture, fat, and sieve analysis shall be reported to the nearest 0.1 percent. The test results for ash level in rye and oat flour shall be reported to the nearest 0.1 percent, while wheat flour shall be reported to the nearest 0.01 percent. FN test results shall be reported to the nearest unit. The test results for specific volume and pH shall be reported to the nearest 0.1 value. Any result not conforming to the finished product requirements shall be cause for rejection of the lot.

6.5 Filth test. All tests required to determine compliance with the provisions of the Federal Food, Drug, and Cosmetic Act in regard to insects, insect fragments, rodent hairs, rodent excreta, and other filth shall be made in accordance with the Official Methods of Analysis of the AOAC International or the Approved Methods of the AACC.

6.6 Specific volume test.

6.6.1 Mixing procedure.

6.6.1.1 General purpose flour (cake formula). Cream Step 1 ingredients together. Add and mix in Step 2 ingredients. After dry ingredients have been thoroughly blended, add 591.47 mL (20 fluid ounces) of water to 2.27 kg (80 ounces) of blended cake mix and mix for 2 minutes in a mechanical blender on second speed. Add an additional 591.47 mL (20 fluid ounces) of water and mix until a smooth batter is obtained. Before batter is poured into a cake pan, lightly grease the sides of the pan and add a release-type parchment paper to the bottom of the pan. Bake 450 grams of batter at 176.67ºC (350ºF) for 30 minutes in a round layer cake pan having inside dimensions of 20.32 by 3.157 cm (8 by 1- ¼ inches).

Step 1	**Parts by weight**
Sugar	43.4
Shortening (Nonemulsified plastic vegetable shortening)	9.5

Salt	0.75
Mono- and diglycerides	0.40
Sodium aluminum phosphate	0.50
Coated monocalcium phosphate	0.05

Step 2

General purpose flour	41.4
Egg albumen	1.5
Nonfat dried milk	2.0
Bicarbonate of soda	0.5

6.6.1.2 Bread flour (bread formula). Procedures shall be performed in accordance with AACC Approved Method 10-11, Sponge-Dough, Pound-Loaf.

6.6.2 Rapeseed displacement method. Determination of specific volume for cake and bread shall be accomplished by the rapeseed displacement method. The volume shall be measured after cake or bread cools at least 2 hours in a room or chamber not exceeding 23.33ºC (74ºF), 55 percent relative humidity.

Remove cooled cake or loaf from pan, place in a container which is higher and greater in perimeter than the cake.

Fill the void space in the container containing the product with rapeseed so that the rapeseed is level with the top edge of the container. Measure this amount of rapeseed in whole milliliters using a graduated cylinder or equivalent measuring device.

Remove product from the container and weigh the product. The weight shall be calculated in terms of whole grams.

Fill the empty container with rapeseed so that the rapeseed is level with the top edge of the container. Measure this amount of rapeseed as specified above.
Calculate specific volume as follows:

$$\frac{\text{Volume of rapeseed in the empty container} - \text{Volume of rapeseed in the void space in the container containing the product}}{\text{Weight of product}} = \text{Specific volume}$$

(Cake volume shall be ascertained by subtracting volume of unoccupied space in container from container volume.)

7. MANUFACTURER'S/DISTRIBUTOR'S PRODUCT ASSURANCE. The manufacturer/ distributor shall certify that the flour provided shall meet the salient characteristics of this CID, conform to their own specifications, standards, and quality assurance practices, and be the same flour for sale in the commercial market. The purchaser reserves the right to require proof of conformance.

8. REGULATORY REQUIREMENTS. The delivered flour shall comply with all applicable Federal, State, and local mandatory requirements and regulations relating to the preparation, packaging, labeling, storage, distribution, and sale of flour within the commercial marketplace. Delivered flour shall comply with all applicable provisions of the Federal Food, Drug, and Cosmetic Act, the Fair Packaging and Labeling Act, and regulations promulgated thereunder.

9. QUALITY ASSURANCE PROVISIONS. *Purchaser shall specify 9.2 or 9.3; purchaser may specify 9.1 with 9.1.1, 9.1 with 9.1.2, or 9.1 with 9.1.3.*

9.1 Manufacturer's quality assurance. When required in the solicitation, contract, or purchase order, the product manufacturer shall be required to provide evidence, by certificate, that the manufacturing plant has undertaken one of the following quality assurance measures within 12 months prior to providing a bid, or no later than 10 business days from the date of awarding of the contract. Failure to provide this documentation within the proper time frame may result in the contract being terminated for cause.

9.1.1 Plant systems audit. A plant systems audit (PSA) conducted by USDA/Federal Grain Inspection Service (FGIS), USDA/Agricultural Marketing Service (AMS), or another audit performed by a third party auditing service and is required within 12 months prior to the date of the awarding of the contract. *(A FGIS or AMS PSA verifies the manufacturer's capability to produce products in a clean, sanitary environment in accordance with Title 21 Code of Federal Regulations Part 110 - Current Good Manufacturing Practice in Manufacturing, Packing, or Holding Human Food, and verifies that the manufacturer has in place an internal quality assurance program. The FGIS or AMS PSA determines the manufacturer's ability to produce under this CID, if the products of interest are identified at the time of the PSA.)*

9.1.2 Plant survey. A plant survey conducted by USDA/FGIS, USDA/AMS, or another survey performed by a third party auditing service and is required within 12 months prior to the date of

the awarding of the contract. *(A FGIS or AMS plant survey audit verifies that, at the time of the survey, the manufacturer produces products in a clean, sanitary environment in accordance with Title 21 Code of Federal Regulations Part 110 - Current Good Manufacturing Practice in Manufacturing, Packing, or Holding Human Food.)*

9.1.3 Total Quality Systems Audit. A total quality systems audit (TQSA) conducted by USDA/Farm Service Agency (FSA), or another survey preformed by a third party auditing service is required within 12 months prior to the date of the awarding of the contract. *(A FSA TQSA verifies the manufacturer's capability to produce products in a clean, sanitary environment in accordance with Title 21 Code of Federal Regulations Part 110 - Current Good Manufacturing Practice in Manufacturing, Packing, or Holding Human Food, and verifies that the manufacturer has in place an internal quality assurance program. The FSA TQSA determines the manufacturer's ability to produce under this CID, if the products of interest are identified at the time of the TQSA.)*

9.2 Manufacturer's/distributor's certification. When required in the solicitation, contract, or purchase order, the manufacturer/distributor will certify that the finished flour distributed meets or exceeds the requirements of this CID.

9.3 USDA certification. When required in the solicitation, contract, or purchase order that product quality and acceptability or both be determined, USDA/FGIS or USDA/AMS, (depending on how it is packaged) shall be the certifying agency. The agency inspectors shall certify the quality and acceptability of the flour in accordance with agency procedures which include selecting random samples of the packaged flour, evaluating the samples for conformance with the salient characteristics of this CID and other contractual requirements, and documenting the findings on official score sheets and/or certificates. In addition, when required in solicitation, contract, or purchase order, agency inspectors will examine the flour for conformance to the United States Standards for Condition of Food Containers in effect on the date of the solicitation.

10. PACKAGING. Preservation, packaging, packing, labeling, and case marking shall be commercial unless otherwise specified in the solicitation, contract, or purchase order.

11. USDA INSPECTION NOTES. When Section 9.3 is specified in the solicitation contract, or purchase order, USDA certification shall include evaluation of the quality and condition of the samples of flour, and compliance with requirements in the following areas:

- Salient characteristics (Sec. 5)
- Analytical requirements *when specified in the solicitation, contract, or purchase order* (Sec. 6.2). When USDA analytical testing is specified, FGIS or AMS inspection personnel shall select samples and submit them to the USDA, FGIS or AMS laboratory for analysis.
- Packaging requirements (Sec. 10 or as specified in the solicitation, contract, or purchase order).

12. REFERENCE NOTES.

12.1 USDA certification contacts.

12.1.1 Federal Grain Inspection Service. For USDA, FGIS certification, contact the **Policies and Procedures Branch, Field Management Division, FGIS, Grain Inspection, Packers and Stockyard Administration (GIPSA), USDA, STOP 3630, 1400 Independence Avenue, SW, Washington, DC 20250-3630, telephone (202) 720-0252, Fax (202) 720-1015, or via E-mail: Henry.C.Greenwood@usda.gov or John.C.Giler@usda.gov.**

12.1.2 Agricultural Marketing Service. For USDA, AMS certification, contact the **Branch Chief, Processed Products Branch (PPB), Fruit and Vegetable Programs (FVP), AMS, USDA STOP 0247, 1400 Independence Avenue, SW, Washington, DC 20250-0247, telephone (202) 720-4693, Fax (202) 690-1527, or via E-Mail: Terry.Bane@usda.gov.**

12.1.3 USDA FSA Total Quality Systems Audit contact. Inquiries about services and fees should be directed to: **Warehouse Licensing and Examination Division, Stop 9148, Kansas City Commodity Office, 6501 Beacon Drive, Kansas City, Missouri 64133-6476, telephone (816) 926-6417 or Fax (816) 926-1774, Website: www.fsa.usda.gov/daco/TQSA/tqsa.htm.**

12.2 Analytical testing and technical information contacts.

12.2.1 Federal Grain Inspection Service. For USDA, FGIS technical information on analytical testing, contact the **Branch Chief, Technical Service Division, Analytical Reference and Testing Branch, FGIS Technical Center, GIPSA, USDA, 10383 North Ambassador Drive, Kansas City, Missouri 64153-1394, telephone (816) 891-0444 or via E-mail: Lynn.A.Polston@usda.gov or Tim.D.Norton@usda.gov.** For USDA, FGIS technical information contact: **Policies and Procedures Branch, FGIS, GIPSA, USDA, STOP 3630, Washington, DC 20250-3630, telephone (202) 720-1732, Fax (202) 720-1015, or via E-mail: Henry.C.Greenwood@usda.gov.**

12.2.2 Agricultural Marketing Service. For USDA, AMS technical information on analytical testing, contact the **Branch Chief, Technical Service Branch, Science and Technology Programs (S&TP), AMS, USDA, STOP 0272, 1400 Independence Avenue, SW, Washington, DC 20250-0272, telephone (202) 690-0621, or via e-mail: anita.okrend@usda.gov.**

12.3 Sources of documents.

12.3.1 Sources of information for nongovernmental documents are as follows:

Copies of the Approved Methods of the American Association of Cereal Chemists (AACC) maybe obtained from: **AACC, 3340 Pilot Knob Road, St. Paul, MN 55121-2097; telephone 651-454-7250, via E-mail aacc@scisoc.org or on the Internet at: www.aaccnet.org.**

Copies of the Official Methods of Analysis of the AOAC International may be obtained from: **AOAC International, 481 North Fredrick Avenue, Suite 500, Gaithersburg, MD 20877, telephone (301) 924-7077. Internet address: http://www.aoac.org.**

12.3.2 Sources of information for governmental documents are as follows:

Applicable provisions of: the Fair Packaging and Labeling Act are contained in 16 CFR Parts 500 to 503, and the Federal Food, Drug, and Cosmetic Act are contained in 21 CFR Parts 1 to 199. These documents may be purchased from: **Superintendent of Documents, ATTN: New Orders, P.O. Box 371954, Pittsburgh, PA 15250-7954. Credit card (MasterCard or Visa) purchases may be made by calling the Superintendent of Documents (202) 512-1800 or on the Internet at: http://www.access.gpo.gov/nara.**

Copies of this CID and the United States Standards for Condition of Food Containers are available from: **Head, Food Quality Assurance Staff, FVP, AMS, USDA, STOP 0243, 1400 Independence Ave., SW, Washington, DC 20250-0243, telephone (202) 720-9939, Fax (202) 690-0102, via E-mail: FQAStaff@usda.gov or on the Internet at: www.ams.usda.gov/fv/fvqual.htm.**

Beneficial comments, recommendations, additions, deletions, clarifications, etc., and any data which may improve this document should be sent to: **Commander, Defense Supply Center Philadelphia, ATTN: DSCP-FTSL, 700 Robbins Avenue, Philadelphia, PA 19111-5092 or FAX (215) 737-2963, or via E-mail: Sally.A.Gallagher@dla.mil.**

Military activities should submit requests for copies of this CID to: **Standardization Documents Order Desk, Document Automation and Production Service, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.**

MILITARY INTERESTS:	**CIVIL AGENCY COORDINATING ACTIVITIES:**
Custodians	DOJ - BOP

HHS - NIH, IHS, FDA
Army - GL
USDA - FV
Navy - SA
VA - OSS
Air Force - 35

Review Activities

Army - MD, QM
Navy - MC

PREPARING ACTIVITY:

DLA - SS
(Project No. 8920-P107)